



UNITED STATES PATENT AND TRADEMARK OFFICE

9m  
UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/801,339	03/07/2001	Tong Chen	010025	4773

7590 04/15/2003

Mark G. Knedeisen, Esq.  
Kirkpatrick & Lockhart LLP  
Henry W. Oliver Building  
535 Smithfield Street  
Pittsburgh, PA 15222-2312

EXAMINER

TRAN, LONG K

ART UNIT	PAPER NUMBER
----------	--------------

2818

DATE MAILED: 04/15/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	09/801,339	CHEN ET AL.
	Examiner Long K. Tran	Art Unit 2818

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 12 March 2003.

2a) This action is **FINAL**.      2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-22 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 1-22 is/are rejected.

7) Claim(s) \_\_\_\_\_ is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

#### Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some \* c) None of:

1. Certified copies of the priority documents have been received.

2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.

3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

#### Attachment(s)

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) 16

4) Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_

5) Notice of Informal Patent Application (PTO-152)

6) Other: \_\_\_\_\_

***Response to Amendment***

1. This office action is in response to Amendment filed on March 12, 2003.
2. Claims **1, 14 and 15** have been amended in Paper No. **15**.
3. Claims **1 – 22** are presented for examination.

***Information Disclosure Statement***

4. This office acknowledges receipt of the following items from the Applicant:

Information Disclosure Statement (IDS) filed on March 12, 2003.

Information disclosed and list on PTO 1449 was considered.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims **1 – 5, 7, 10, 11 and 13** are rejected under 35 U.S.C. 102(e) as being anticipated by Glenn (US Patent No. 6,274,927).

Regarding claim **1**, figures 21 & 22 illustrate a device comprising: a base 31; a device 23 connected to the base; and a cover 93 including a one-piece plastic body (col. 12, lines 38 – 44) and at least one electrically conductive lead 39, wherein the body is connected to the base such that the device is enclosed by the cover, and wherein the electrically conductive lead includes an exposed portion 40 electrically connected to the device.

Regarding claim 2, figure 21 illustrates an inner surface of the body of the cover 93 and upper surface of the device 23 define an air gap (col. 12, lines 45 – 50).

Regarding claim 3, figure 21 illustrates the inner surface of the body 94 and foot like extension 96 of sidewall 94 connected to the base.

Regarding claim 4, figures 3, 5 & 21 illustrate the base 31 includes an electrically conductive base-plate 35 on which the device is mounted (col. 4, line 42).

Regarding claims 5 and 7, figures 3, 5 & 21 illustrate base 31 includes a substrate / dielectric material on which the device is fabricated.

Regarding claims 10, 11 and 13, figure 21 illustrates device 23 is an optical integrated circuit device (col.12, line 54).

#### ***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 9 and 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Glenn (US Patent No. 6,274,927).

Regarding claim 9, Glenn discloses the claimed invention of claim 1 and further teaches the body 93 is injection molded being formed of an optically clear material. However Glenn does not explicitly teach the body cover includes liquid crystal polymer. It is known liquid crystal is commonly used to form the optical device as an optically

clear material, so it is inherent that the optically clear material in Glenn device can be liquid crystal polymer. It would have been obvious to one of ordinary skill in the art at the time the invention was made to form the body 93 with liquid crystal polymer in Glenn's device.

Regarding claims **12**, Glenn discloses the claimed invention of claim 1 except for the device is selected from the group consisting of a MMIC. It has been held that a recitation with respect to the manner in which a claimed apparatus (device is selected from the group of a MMIC) is intended to be employed does not differentiate the claimed apparatus (device 23) from prior art apparatus satisfying the claimed structural limitations. *Ex Parte Masham*, 2 USPQ F. 2d 1647 (1987).

9. Claims **6** and **8** is rejected under 35 U.S.C. 103(a) as being unpatentable over Glenn (US Patent No. 6,274,927) in view of Tanaka et al. (U.S. Patent No. 5,097,318).

Regarding claims **6** and **8**, Glenn discloses the claimed invention of claims 1 and 5 except for at least one electrically conductive via extending from a first surface of the substrate to a second surface of the substrate; and at least one electrically conductive ball/bump connected to the electrically conductive via.

Tanaka et al. disclose solder bump 11 (fig. 8) connected to the conductor through-holes 4 (fig. 8) in order to change the wiring pattern design without changing the insulating base substrate and the insulating cover substrate.

At the time the invention was made, It would have been an obvious to one having ordinary skill in the art to include at least one electrically conductive via extending from a first surface of the substrate to a second surface of the substrate and at least one

electrically conductive ball connected to the electrically conductive via. Applicant has not disclosed that at least one electrically conductive via extending from a first surface of the substrate to a second surface of the substrate and at least one electrically conductive ball connected to the electrically conductive via provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with either electrically conductive via or the out-leads 39 (Glenn, fig. 21) or solder bump 11 (Tanaka et al., fig. 8) connected to the conductor through-holes because both methods provide an electrical connection between the device and the exposed portion of the leads to the other side of the base. Therefore, it would have been obvious to ordinary skill in this art to use conductor through-holes to obtain the invention as specified in claim 6.

10. Claims **14 – 18 and 20 – 22** are rejected under 35 U.S.C. 103(a) as being unpatentable over Glenn (US Patent No. 6,274,927) in view of Choi (U.S. Patent No. 5,753,857).

Regarding claims **14, 15**, figures 21 & 22 (Glenn) illustrate a device comprising: a base 31; a device 23 connected to the base; and a cover 93 including a one-piece plastic body (col. 12, lines 38 – 44) and at least one electrically conductive lead 39, wherein the body is connected to the base such that the device is enclosed by the body such that an inner surface of the body of the cover and an upper surface of the device define an air gap therebetween, and wherein the electrically conductive lead includes an exposed portion

40. However, Glenn does not explicitly teach an electrically conductive bump electrically connected between the device and the exposed portion of the electrically conductive lead.

Choi discloses the apparatus comprising an electrically conductive bump 17b (Choi, fig. 2) between the exposed portion 13a (Choi, fig. 2) of the lead and the device.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use conductive bump for electrically connected between the device and the exposed portion of the electrically conductive lead in Glenn's device as taught by Choi in order to connect the device and the wiring layers when the connection cannot be carried out by the wire bonding technique and to change the wiring pattern design without changing the insulating base substrate and the insulating cover substrate.

Regarding claims **16** and **17**, figure 21 (Glenn) illustrates device 23 is an optical integrated circuit device (col.12, line 54).

Regarding claims **18**, Glenn discloses the claimed invention of claim 1 except for the device is selected from the group consisting of a MMIC. It has been held that a recitation with respect to the manner in which a claimed apparatus (device is selected from the group of a MMIC) is intended to be employed does not differentiate the claimed apparatus (device 23) from prior art apparatus satisfying the claimed structural limitations. *Ex Parte Masham*, 2 USPQ F. 2d 1647 (1987).

Regarding claim **20**, Glenn discloses the claimed invention of claim 1 and further teaches the body 93 is injection molded being formed of an optically clear material. However Glenn does not explicitly teach the body cover includes liquid crystal polymer. It is

known liquid crystal is commonly used to form the optical device as an optically clear material, so it is inherent that the optically clear material in Glenn device can be liquid crystal polymer. It would have been obvious to one of ordinary skill in the art at the time the invention was made to form the body 93 with liquid crystal polymer in Glenn's device.

Regarding claim 21, figure 21 (Glenn) illustrates an inner surface of the body of the cover 93 and upper surface of the device 23 define an air gap (col. 12, lines 45 – 50).

Regarding claim 22, figure 21 (Glenn) illustrates the inner surface of the body 94 and foot like extension 96 of sidewall 94 connected to the base.

11. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Glenn (US Patent No. 6,274,927) in view of Choi (U.S. Patent No. 5,753,857) and further in view of Chen et al. (US Patent No. 5,300,791) and Kuroda et al. (JP-40304844).

Regarding claims 19, Glenn and Choi disclose the claimed invention of claim 15. However they do not explicitly teach the device includes a GaAs substrate.

It is known and also taught by Chen et al. that optical device optical device (device related to emitted light) comprising GaAs is known and also taught by Chen et al. (a substrate of n-type GaAs 120 (fig. 1); col. 1, line 15). It is noted that Glenn's device 23 is an optical device, so it is inherent that the substrate in Glenn's device is a GaAs layer. It would have been obvious to one of ordinary skill in the art at the time the invention was made to form the device with GaAs substrate in Glenn's device.

In addition, Glenn and Choi do not teach and baseplate includes a metal selected from the group consisting of CuW and Cu/Mo/Cu.

Art Unit: 2818

Kuroda et al. disclose a CCD package comprising a die pad which consisting of non-alloy composite matter made by filling matter made by filling a specified amount of fused copper in a tungsten or molybdenum porous material are directly bonded together by soldering (abstract). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use CuW as a baseplate (die pad) in Glenn's device as taught by Kuroda et al. in order to obtain a CCD package which has no warp-age and strain.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Long K. Tran whose telephone number is 703-305-5482. The examiner can normally be reached on Mon-Thu.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on 703-308-4910. The fax phone numbers for the organization where this application or proceeding is assigned are 703-746-7466 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-3329.

Long Tran *UKT*  
April 9, 2003



HOAI HO  
PRIMARY EXAMINER